

## NOTES ON THE ORTHOPTERA OF THE EASTERN UNITED STATES

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Since my "Orthoptera of Northeastern America" appeared in May, 1920, a number of notes on the distribution, habits, etc., of certain species have accumulated. In order that our knowledge of this interesting order of insects may be kept somewhat up to date, I have brought these together in the present paper. I have also made brief mention of such new species and varieties as have been described by other authors from the territory covered by that work since its appearance. The serial number before the name of each species is that of the same species in the "Orthoptera."

(2). *Anisolabis annulipes* (Lucas). Since 1920 this earwig has been taken in numbers at Dunedin, Fla., from beneath and in decaying grape fruit and in piles of rotting unhulled rice.

(. .). *Anisolabis (Euborellia) ambigua* Borelli. Hebard<sup>1</sup> has recently recorded the taking of a number of specimens of this West Indian form from beneath tidal litter along the edge of a mangrove swamp near Miami, Florida.

(10). *Doru aculeatum* (Scudder). While hunting near Indianapolis for *Donacia* on skunk cabbage, *Spathyema fœtida* (L.), I took on May 1, 1921, 42 specimens of this earwig from between the bases of the leaves of the plants. They were below the surface of the ground, one to five in each clump of the plant, though usually in pairs, resting head downward in the groove which extends along the petiole of the leaf. Associated with them I found ten specimens of the chrysomelid beetle, *Donacia rufa* Say, and examples of several other species of beetles. I believe that the natural habitat of a number of our inland species of earwigs will be found to be between the base leaves and stems of grasses, sedges and other plants in damp localities.<sup>2</sup> From this retreat they emerge only at night in search of food.

<sup>1</sup>Trans. Amer. Ent. Soc., XLVII, 1922, 321.

<sup>2</sup>See Orthoptera of N. E. America, p. 57.

(39). *Arenivaga floridensis* Caudell. Two additional males of this Floridian roach have been found near Dunedin. They were taken in April while flying low along sandy roadways in the pine woods.

(57). *Manomera blatchleyi* (Caudell). W. T. Davis<sup>3</sup> has recently described an eastern race of this species under the name *Manomera blatchleyi atlantica*. His specimens (females only) were from Staten Island, Long Island, New York, New Jersey, Connecticut and Virginia. From typical *blatchleyi* it differs mainly in its broader and more tapering head, longer legs and shorter cerci.

(60). *Megaphasma denticus* (Stal). The first known Indiana specimens of this giant walking-stick were taken at Wyandotte, Crawford County, on August 2, 1921. A male, 105 mm. in length, was found crawling slowly along a woodland pathway and two others on the ceiling of the hotel porch.

(64b). *Nomotettix cristatus floridanus* Hancock. The second known example of the long or caudate form of this grouse-locust was taken March 30, 1920, while sweeping herbage in a cypress swamp on the margin of Lake Istokpoga, Florida.

(76). *Paxilla obesa* (Scudder). A single male of this bulky species was swept from the same swamp at Lake Istokpoga. It was the first specimen I had taken personally during all my collecting.

(79.) *Tettigidea armata* Morse. A female of this form was taken at Moore Haven, Florida, on March 24.

(102). *Ageneotettix deorum* (Scudder). The known range of this species has been extended eastward by Hubbell,<sup>4</sup> who records the taking of a specimen at Three Oaks, Michigan.

(105). *Mecostethus platypterus* (Scudder). A number of specimens taken at Cambridge, Nebraska, July 19, 1921, have been sent me by A. P. Morse. Not before recorded west of Iowa and Minnesota.

<sup>3</sup>Journ. N. Y. Ent. Soc., XXXI, 1923, 52.

<sup>4</sup>Occasional Papers of the Museum of Zoology, Univ. of Mich., No. 116, 39.

(145). *Hesperotettix pratensis* Scudder. I was surprised to find, on August 4, 1921, several specimens of this handsome little locust by the side of a roadway running along a high wooded ridge near Wyandotte, Crawford Co., Ind. This county is in the extreme southern end of the State, adjoining the Ohio River. The only other Indiana localities previously known were in Lake County, adjoining Lake Michigan, where it occurs only in swales or low marshy tracts between the sand dunes. The tegmina of these southern upland examples were shorter than in those from the marshlands of the North, but the form of prosteranal spine, of hind margin of metazona and of supra-anal plate of male are very distinctive in the species and differ conspicuously from those of *H. brevipennis* (Thos.).

(160). *Melanoplus viridipes* Scudder. Morgan Hebard,<sup>5</sup> of Philadelphia, has, both in Mss. and in print, taken occasion to caustically criticise my treatment of this and allied species, and has described (loc. cit.) a new eastern race. *M. v. eurycercus*, using in part as cotypes, material I furnished him from Indiana. As stated by me in my notes on this species (p. 367 of the "Orthoptera"), some of the cotypes of Scudder's *viridipes* came from a colony discovered by me in Vigo County, Indiana. One of Morse's cotypes of *M. deceptus* came from this same colony. The species occurs mainly in isolated colonies of 30 to 70 or more in open blue-grass wooded pastures. It is very probable that these colonies emerge from one or two egg masses deposited by the same female. From such a colony occupying not over 100 square feet in a pasture of Marion County, Indiana, I have taken numerous examples which showed all the variations of the male cerci on which were based the three forms, *viridipes* Scudder, *deceptus* Morse, and *eurycercus* Hebard. The females of these forms are absolutely inseparable, as is admitted by Hebard (loc. cit., p. 394). If the egg pods of a single female, or of two or three females which originally came from the same colony, give rise to males whose variation in cerci is such as to lead to the founding of three species or races, where is the hair-splitting of nomenclature to end?

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<sup>5</sup>Trans. Amer. Ent. Soc., XLVI, 1920, 357, 393.

Hebard (loc. cit., p. 393) states that "from over the wide range of *viridipes* eastward from Lake Co., Indiana, not a single male before us shows a cercal development intermediate in character between the typical condition of *viridipes* and *eurycercus*"; yet on the very next page he says "the males before us from Ann Arbor, Michigan, are intermediates, referable to *v. eurycercus* but showing distinct variation toward *v. viridipes*." Ann Arbor is 165 miles east of Lake Co., Indiana.

Hubbell (loc. cit., p. 50) states that all but two of the 31 males of *viridipes* taken by him in Berrien Co., Michigan, are of a type intermediate between typical *viridipes* and *eurycercus*. Although I may not be able, as Hebard claims, "to recognize the true value of species or races wherever finesse or elaborate analysis is necessary," I do not believe in trammeling nomenclature by giving a new name to every individual that has an extra spot on its side or an extra curve in its tail.

(.). **Melanoplus calloplus** Hebard. Under this name Hebard (loc. cit., p. 398) describes and refers to the Gracilis Group a form from Collison Ridge, Bath Co., Virginia, which he calls "an annectant type between *M. similis* Morse and *M. viridipes* Scudd."

(.). **Melanoplus alabamæ** Hebard. This name is given by Hebard (loc. cit., p. 374) to a form taken at Evergreen, Conecuh Co., Alabama. He states that it is very closely related to *M. querneus* R. & H., "differing apparently in the slightly smaller size and slightly more slender form, but strikingly in the shape of the male cerci."

(.). **Melanoplus tunicæ** Hebard. From Strickton, Rankin Co., Mississippi, Hebard (loc. cit., p. 370) describes a form under this name. He states that it differs from *Melanoplus ponderosus viola* Thos. in its "slightly more slender form, average longer tegmina, usually somewhat more solid coloration and distinctive male cerci."

(194). **Melanoplus flavidus** Scudder. Hubbell (loc. cit., p. 53) records this species from Berrien Co., Michigan, this being its most eastern known station and the first record for that State.

(258). *Orchelimum volantum* McNeill. The known range of this species has been extended eastward to New Jersey by Dr. H. Fox<sup>6</sup>, who took specimens near Rancocas and Delanco, that state, in August and September, 1920. Its most eastern station hitherto recorded was Cedar Point on the shore of Lake Erie, Ohio.

(264). *Conocephalus nemoralis* (Scudder). This species has been taken in Berrien Co., Michigan, by Hubbell (loc. cit., p. 65), this being the first and only record for that State.

(269). *Conocephalus attenuatus* (Scudder). Dr. Fox reports (loc. cit., p. 268) the taking of this meadow grasshopper at several localities in New Jersey. Its former most eastern station was Cornwells, Pennsylvania.

(273). *Conocephalus viridifrons* Blatch. According to Hubbell,<sup>7</sup> this little meadow grasshopper occurs in numbers in the eastern part of North Dakota, where it was found in dry fields and pastures in company with, but even more numerous than, *C. fasciatus* (DeGeer).

(337). *Oecanthus exclamationis* Davis. In fulfillment of my prediction (p. 719 of the "Orthoptera") that this species "doubtless occurs in Indiana," specimens were taken in Knox County September 13, 1920, and July 5, 1921; also in Marion County in July and August of the latter year. All were swept from low shrubs in dense woodlands.

(.). *Oecanthus nigricornis argentinus?* Saussure. Among specimens of *O. n. quadripunctatus* taken in Knox Co., Indiana, on Sept. 18, 1922, I found several having a shorter, broader body than that variety and with the outer black mark on basal joint of antennæ larger and set almost at right angles to the inner one; while the two on the second joint were shorter, thicker, subequal in length and with their lower ends converging to form a rough V. As I could not determine them satisfactorily from the literature at hand, I sent them to A. N. Caudell of Washington, who wrote that "they are what I call *O. nigricornis* var. *argentinus*

<sup>6</sup>Ent. News, XXXII, 1921, 265.

<sup>7</sup>Occasional Papers of the Museum of Zoology, Univ. of Mich., No. 113, p. 49.

Sauss.", and he stated that he had specimens from a number of the Western States and from Delaware; also that breeding, as shown by Houghton<sup>8</sup> had proven them to be intermediate between typical *nigricornis* Walker and *quadripunctatus* Beut. That this is their status, there is probably no doubt, but that they are the form described by Saussure from La Plata, Argentina, is strongly problematical. His description<sup>9</sup> calls for a species very similar to *O. niveus* but having joints 1 and 2 of antennæ with a *single* black line beneath. He afterward treated a species under that name more fully in the "Biologia" (1897, p. 263, not to me now available), where, according to Caudell,<sup>10</sup> there was "considerable variation from his original description in the length of the wings and the marking of the antennæ." As Caudell originally determined the United States form from Texas specimens and from the Saussure literature without comparison with the types, he may have been mistaken in its naming, as he infers when he says "specimens of what I take to be this species," etc. As individuals with the peculiar markings of the antennæ, as described above, will probably be found at various points in the Eastern States, I have mentioned these facts in order that they may be properly placed.

(341). *Neoxabea bipunctata* (DeGeer). Within the past three years this species has been taken in some numbers in Knox, Putnam and Marion Counties, Indiana, while sweeping vegetation in low alluvial woodlands along streams. At the time of writing the "Orthoptera" I had taken but two specimens in over thirty years' collecting in that state.

(349). *Hapithus agitator* Uhler. A female of this species with a pupal case of a parasite, almost as large as the body of the host, attached to the abdomen, was taken in Knox Co., Indiana, Sept. 18, 1922. Through Mr. Caudell the parasite was determined by Mr. Rohwer as probably the hymenopteron, *Rhopalosoma poeyi* Cresson. Specimens of that parasite from the same species of cricket have been reared by J. D. Hood of Washington, D. C.

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<sup>8</sup>Ent. News, XX, 1909, 274; Can. Ent., XLI, 1909, 113.

<sup>9</sup>Mission Scientifique au Mexique, 1874, 460.

<sup>10</sup>Proc. Ent. Soc. Wash., V, 1903, 166.